

CLAIMS

What is claimed is:

1. A system for treating a vascular condition, the system comprising:
a hollow guidewire;
a core wire inserted through the hollow guidewire, the core wire including a tapered undulating section carried within the hollow guidewire; and
an embolic containment device coupled between a distal end of the hollow guidewire and a distal end of the core wire, wherein the tapered undulating section of the core wire provides frictional control of the embolic containment device based on a direction of axial translation within the hollow guidewire.
2. The system of claim 1 wherein the tapered undulating section frictionally contacts an inner surface of the hollow guidewire.
3. The system of claim 1 wherein the tapered undulating section includes a plurality of undulations along an axial portion of the core wire, wherein an amplitude of each consecutive undulation varies with axial distance from a proximal end of the core wire.
4. The system of claim 3 wherein the amplitude of each consecutive undulation increases linearly with distance from the proximal end of the core wire.
5. The system of claim 3 wherein the amplitude of each consecutive undulation decreases linearly with distance from the proximal end of the core wire.

6. The system of claim 1 wherein the tapered undulating section provides greater friction when the core wire axially translates between a proximal position and a distal position than when the core wire axially translates between the distal position and the proximal position.

7. The system of claim 1 wherein the tapered undulating section provides lesser friction when the core wire axially translates between a proximal position and a distal position than when the core wire axially translates between the distal position and the proximal position.

8. The system of claim 1 wherein the tapered undulating section of the core wire comprises a crimped set of bends formed in the core wire.

9. The system of claim 1 wherein the embolic containment device comprises an embolic filter.

10. The system of claim 9 wherein the embolic filter includes a braided wire mesh, and wherein at least a portion of the braided wire mesh is coated with an elastomeric material.

11. The system of claim 1 wherein the embolic containment device is actuated to an expanded configuration when the core wire is translated proximally relative to the hollow guidewire.

12. The system of claim 1 wherein the embolic containment device is actuated to a contracted configuration when the core wire is translated distally relative to the hollow guidewire.

13. The system of claim 1 wherein the embolic containment device comprises an occluder.

14. The system of claim 13 wherein the occluder blocks fluid flow through a body vessel when the occluder is actuated, the occluder being actuated by an axial translation of the core wire within the hollow guidewire.

15. The system of claim 1 further comprising:
a coating disposed on at least a portion of the core wire, wherein the coating reduces friction between the coated portions of the core wire and an inner surface of the hollow guidewire.

16. A method of treating a vascular condition, the method comprising:
providing a core wire inserted through a hollow guidewire, the core wire including a tapered undulating section carried within the hollow guidewire;
providing an embolic containment device coupled between a distal end of the hollow guidewire and a distal end of the core wire;
axially translating the core wire in a first direction relative to the hollow guidewire;
expanding the embolic containment device based on the axial translation in the first direction; and
controlling the axial translation in the first direction based on frictional resistance between the tapered undulating section and an internal surface of the hollow guidewire.

17. The method of claim 16 further comprising:
capturing embolic material when the embolic containment device is expanded.

18. The method of claim 16 further comprising:
 - axially translating the core wire in a second direction relative to the hollow guidewire;
 - contracting the embolic containment device within the vessel based on the axial translation in the second direction; and
 - controlling the axial translation in the second direction based on frictional resistance between the tapered undulating section and the internal surface of the hollow guidewire.
19. The method of claim 16, wherein the embolic containment device includes one of an embolic filter and an occluder.
20. A guidewire-based embolic filter system comprising:
 - a hollow guidewire; and
 - a core wire inserted through the hollow guidewire, the core wire including frictional control means for providing control of the expansion and contraction of an embolic filter based on a translational direction of the core wire within the hollow guidewire.